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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/688,935

10/21/2003

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EXAMINER

TRAN, NHAN T

ART UNIT

PAPER NUMBER

2622

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DELIVERY MODE

11/14/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/688,935

Applicant(s)

OMIYA ET AL.

Examiner

Nhan T. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/21/2003, 3/30/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statements (IDS) submitted on 10/21/2003 and 12/08/2003 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

Preliminary Amendments

3. The preliminary amendments filed 3/30/2004 have been entered. Currently, claims 1-12 are canceled, and claims 13-49 are pending.

Specification

4. The title of the invention (Digital Camera) is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

5. Claim 22 is objected to because of the recitation of "the top" which should be corrected to read as -- a top --.

Claim 39 is objected to because of the recitation of "group)" which should be corrected to read as -- group --.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claims 18, 32, 35-40, 42, 44-46 & 48 are rejected under 35 U.S.C. 102(a) as being anticipated by Nomura et al. (US 2003/0156832).

Regarding claim 18, Nomura discloses a digital camera that creates an image signal through catching a subject light (see Figs. 1 & 2 and paragraph [0002]), the digital camera comprising:

an image taking lens (Figs. 1 & 2), which is variable in a focal length, comprising three groups of a first lens group (L1), a second lens group (L2), and a third lens group (L3) in the named order with respect to an optical axis direction (Z1) (see paragraph [0051]);

a lens barrel (10) that incorporates therein the image taking lens, having in front an aperture through which the image taking lens appears and having in rear an internal

space defined by a wall (11), the lens barrel being free in extension and collapse and performing a focal length control (Figs. 1 & 2 and paragraphs [0051]-[0054]);

a solid state imaging device (image sensor C) that receives the subject light formed by the image taking lens to create the image signal, the solid state imaging device being supported by the wall, wherein the lens barrel has a second lens group guide frame (19/20 in Figs. 1 & 4) that moves in the optical axis direction in accordance with the extension and the collapse so as to determine a position related to the optical axis direction of the second lens group, and a second lens group holding frame (21a-21d) that holds the second lens group and is pivotally supported by the second lens group guide frame, the second lens group holding frame causing the second lens group to revolve on the optical axis of the image taking lens at the time of the extension (Figs. 1, 3A & 6A), and the second lens group holding frame causing the second lens group to revolve on a saving position out of the optical axis of the image taking lens at the time of the collapse (Figs. 2, 3B, 6B; see paragraphs [0064]-[0068]).

Regarding claim 19, Nomura also discloses that the digital camera further comprises a focusing mechanism wherein a focusing is performed by a movement of the third lens group (L3) in the optical axis direction (see paragraph [0051]).

Regarding claim 20, Nomura further discloses the second lens group holding frame (21a-21d) is enabled in a direction that the second lens group is revolved on the optical axis (Figs. 4-10), the wall has a revolving affecting section (11a shown in Figs. 4,

6A, 6B & 9) having a geometry projecting into the internal space, the revolving affecting section being in contact with the second lens group holding frame at the time of the collapse to affect revolving of the second lens group holding frame, and the second lens group holding frame has an affect receiving section (21c) that is pushed by the revolving effecting section at the time of the collapse so that the second lens group revolves into the saving position (see Figs. 4, 6A, 6B & 9 and paragraphs [0066]-[0067]).

Regarding claim 21, it is clear in Nomura that the second lens group holding frame causes the second lens group to advance onto the optical axis of the image taking lens by affect of the enabling, at the time of the extension, in such a manner that the affect receiving section is separated from the revolving affecting section (Figs. 6A & 8A and paragraphs [0066]-[0067]).

Regarding claim 22, Nomura also shows that the revolving affecting section (11a) has a taper on a top (see Figs. 4, 6A & 6B), and the affect receiving section causes the second lens group (L2) to be saved from the optical axis (Z1) of the image taking lens to the saving position through revolving by means of pushing by the taper of the revolving affecting section, at the time of the collapse (Figs. 6A-9 and paragraphs [0066]-[0068]).

Regarding claim 23, Nomura further discloses that the second lens group holding frame (21a-21d) is enabled in a direction that the second lens group is revolved on the optical axis, the lens barrel has a cylinder (21c in Fig. 4) that rotatably moves (by spring

force 23 shown in Fig. 1) in accordance with the extension (Figs. 1, 6A & 8A) and the collapse (Figs. 2, 6B & 8B), and the cylinder has a revolving affecting section (20c in Figs. 1, 5A & 5B) being in contact with the second lens group holding frame by a rotatable movement of the cylinder at the time of the collapse to affect revolving of the second lens group holding frame, and the second lens group holding frame has an affect receiving section that is pushed by the revolving effecting section at the time of the collapse so that the second lens group revolves into the saving position (Figs. 4-10 and paragraphs [0066]-[0068]).

Regarding claim 24, as shown in Figs. 6A-10 in Nomura, the second lens group holding frame causes the second lens group to advance onto the optical axis of the image taking lens, at the time of the extension, in such a manner that the second lens group holding frame is released from urging of the revolving affecting section.

Regarding claim 25, Nomura also discloses that the revolving affecting section has a projection provided at the rear end of the cylinder with respect to the optical axis direction, and the affect receiving section causes the second lens group to be saved from the optical axis of the image taking lens to the saving position through revolving by means of pushing by the taper of the revolving affecting section, at the time of the collapse (see Figs. 4-10 and paragraphs [0065]-[0068]).

Regarding claim 28, this claim is also met by the analysis of claim 18, wherein a front elements lens, a rear elements lens and a focus lens respectively correspond to the first, second and third lens group in claim 18. Furthermore, Nomura discloses the lens barrel has a lens advancing and saving mechanism (motor M and supports as shown in Fig. 1) in which at the time of the collapse of the lens barrel, the rear elements lens (L2) is saved to a hollow portion (upper space shown in Figs. 1 & 2) divided by the solid state imaging device (image sensor C) and the wall (11) beside the solid state imaging device, the hollow portion being formed by the fact that the solid state imaging device is disposed at the position projecting from the wall, and at the time of the extension of the lens barrel, the rear elements lens is advanced onto an optical axis of the image taking lens (see Figs. 1-10 and paragraphs [0065]-[0068]).

Regarding claims 29-31, this claim is also met by the analysis of claims 18, 20 & 23, respectively.

Regarding claim 32, it is also clearly seen in Nomura that the digital camera further comprises a driving source (motor M and torsion spring 23) that rotatably moves the rear elements holding frame so that the rear elements lens revolves (Figs. 1-10 and paragraphs [0057 and [0065]-[0068]).

Regarding claim 34, this claim is also met by the analyses of claims 18, 28 & 29.

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Regarding claims 35-37, these claims are also met by the analyses of claims 30-32, respectively.

Regarding claim 38, this claim is also met by the analyses of claims 18 & 23.

Regarding claims 39 & 40, these claims are also met by the analyses of claims 24 & 25, respectively.

Regarding claim 42, this claim is also met by the analyses of claims 18 & 32.

Regarding claim 44, this claim is also met by the analyses of claims 18 & 23.

Regarding claims 45 & 46, these claims are also met by the analyses of claims 24 & 25, respectively.

Regarding claim 48, this claim is also met by the analyses of claims 18 & 32.

Regarding claim 26, see claim 32.

Regarding claim 27, Nomura also discloses that the driving force is a motor (M), and the second group holding frame has a gear for transmitting a driving from the motor (see [0057]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 13-17, 33, 41, 43, 47 & 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nomura et al. (US 2003/0156832).

Regarding claim 33, Nomura also suggests that not only the second lens group/the rear elements lens (L2) is collapsed into the hollow position or extended from the hollow position but also a light quantity control member (the diaphragm shutter S) can be collapsed into or extended from the hollow position in the same manner as the second lens group (see paragraph [0076]). Although Nomura does not disclose that the diaphragm shutter is moved in one united body together with the second lens group/the rear elements lens, it would be quickly recognized by one skilled in the art from the suggestion of Nomura to provide a united body for moving both the lens and the shutter diaphragm together into the hollow position as well as extending from the hollow position so as to reduce driving mechanism components in comparison with separate driving mechanism for each unit, thereby reducing cost and size of the camera.

Therefore, it would have been obvious to one of ordinary skill in the art to modify the camera of Nomura in view of his suggestion to move the light quantity control

member (diaphragm shutter S) in one united body together with the second lens group/the rear elements lens (L2) into the hollow position and also extending them from the hollow position to the optical axis of the image taking lens. Such construction would reduce driving mechanism components in comparison with separate driving mechanism for each unit, thereby reducing cost and size of the camera.

Regarding claims 41, 43, 47 & 49, these claims are also met by the analysis of claim 33.

Regarding claim 14, Nomura further discloses that the light quantity control member is an aperture member (by virtue of diaphragm of shutter S) that controls an aperture caliber to control the subject light passing through the image taking lens (see paragraph [0076]).

Regarding claim 16, it also clear in Nomura that the light quantity control member is a shutter member that controls a shutter speed to control the subject light passing through the image taking lens (see paragraph [0076]).

Regarding claim 13, although Nomura teaches the light quantity control member (the diaphragm shutter S) as discussed in claim 33, Nomura is just silent about the light quantity control member consists of an electrooptical element. However, an Official Notice is taken that it is well known in the art to use an electrooptical element, i.e., a

liquid crystal shutter, as the shutter since the electrooptical shutter provides an advantage that no mechanical motion will be needed to implement the shutter operation.

Therefore, it would have been obvious to one of ordinary skill in the art to modify the shutter in Nomura to implement an electrooptical shutter, i.e., a liquid crystal shutter, so as to eliminate mechanical driving for the shutter, thereby providing a reliable and compact shutter unit for the camera.

Regarding claims 15 & 17, these claims are also met by the analyses of claims 13, 14 & 16.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Tran whose telephone number is (571) 272-7371. The examiner can normally be reached on Monday - Friday, 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



NHAN T. TRAN
Patent Examiner